



STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

Washington State Energy Code Development Standard Energy Code Proposal Form

May 2018

Log No. _____

Code being amended: ☒ Commercial Provisions ☐ Residential Provisions

Code Section # C406.13

Brief Description:

Brief Description: Provides path to a C406.1 credit for the installation of a drainwater heat recovery system for domestic water preheat or service water heating load offsetting.

Proposed code change text: (Copy the existing text from the Integrated Draft, linked above, and then use underline for new text and ~~strikeout~~ for text to be deleted.)

C406.13 Drainwater heat recovery. A drainwater heat recovery device conforming to section C404.10 is required. Buildings incorporating the use of drainwater heat recovery devices shall utilize the device to preheat domestic water make-up to the service water heating equipment, or otherwise partially offset the domestic hot water load to plumbing fixtures. Installation shall comply with manufacturer's recommendations for maximizing energy capture of the device.

*TABLE C406.1
EFFICIENCY PACKAGE
CREDITS*

Code Section	Commercial Building Occupancy					
	Group R-1	Group R-2	Group B	Group E	Group M	All Other
	Additional Efficiency Credits					
1. More efficient HVAC performance in accordance with Section C406.2	2.0	3.0	3.0	2.0	1.0	2.0
2. Reduced lighting power: Option 1 in accordance with Section C406.3.1	1.0	1.0	2.0	2.0	3.0	2.0
3. Reduced lighting power: Option 2 in accordance with Section C406.3.2 ^a	2.0	3.0	4.0	4.0	6.0	4.0
4. Enhanced lighting controls in accordance with Section C406.4	NA	NA	1.0	1.0	1.0	1.0
5. On-site supply of renewable energy in accordance with C406.5	3.0	3.0	3.0	3.0	3.0	3.0

6. Dedicated outdoor air system in accordance with Section C406.6 ^b	4.0	4.0	4.0	NA	NA	4.0
7. High performance dedicated outdoor air system in accordance with Section C406.7	4.0	4.0	4.0	4.0	4.0	4.0
8. High-efficiency service water heating in accordance with Sections C406.8.1 and C406.8.2	4.0	5.0	NA	NA	NA	8.0
9. High performance service water heating in multi-family buildings in accordance with Section C406.9	7.0	8.0	NA	NA	NA	NA
10. Enhanced envelope performance in accordance with Section C406.10 ^c	3.0	6.0	3.0	3.0	3.0	4.0
11. Reduced air infiltration in accordance with Section C406.11 ^c	1.0	2.0	1.0	1.0	1.0	1.0
12. Enhanced commercial kitchen equipment in accordance with Section C406.12	5.0	NA	NA	NA	5.0	5.0 (Group A-2 only)
13. Drainwater heat recovery	<u>1.0</u>	<u>1.0</u>	<u>1.0</u>	<u>1.0</u>	<u>1.0</u>	<u>1.0</u>

- a. Projects using this option may not use Item 2.
- b. This option is not available to buildings subject to the prescriptive requirements of Section C403.3.5.
- c. Buildings or building areas that are exempt from thermal envelope requirements in accordance with Sections C402.1.1 and C402.1.2 do not qualify for this package.

Purpose of code change:

Projects pursuing this credit are anticipated to result in energy savings of 20% or greater for domestic hot water consumption, depending on quantity of showers in the building.

Your amendment must meet one of the following criteria. Select at least one:

- ☐ Addresses a critical life/safety need.
- ☐ The amendment clarifies the intent or application of the code.
- ☒ Addresses a specific state policy or statute.
(Note that energy conservation is a state policy)
- ☐ Consistency with state or federal regulations.
- ☐ Addresses a unique character of the state.
- ☐ Corrects errors and omissions.

Check the building types that would be impacted by your code change:

- ☐ Single family/duplex/townhome
- ☒ Multi-family 4 + stories
- ☒ Institutional
- ☐ Multi-family 1 – 3 stories
- ☒ Commercial / Retail
- ☒ Industrial



STATE OF WASHINGTON

STATE BUILDING CODE COUNCIL

Your name Chris Little Email address chrisl@rushingco.com

Your organization Rushing Company Phone number 206-763-2944

Other contact name Eric Vander Mey

Instructions: Send this form as an email attachment, along with any other documentation available, to:
sbcc@des.wa.gov. For further information, call the State Building Code Council at 360-407-9278.

Economic Impact Data Sheet

Briefly summarize your proposal's primary economic impacts and benefits to building owners, tenants and businesses.

The capture of drainwater heat energy for the purposes of offsetting required domestic water heating reduces the building's energy load. This provides an economic savings to the owner, tenant or business regarding energy services, and reduces the need for electric or fossil fuel heating.

Provide your best estimate of the construction cost (or cost savings) of your code change proposal? (See OFM Life Cycle Cost [Analysis tool](#) and [Instructions](#); use these [Inputs](#). **Webinars on the tool can be found [Here](#) and [Here](#)**)

\$[Click here to enter text](#)./square foot (For residential projects, also provide \$[Click here to enter text](#)./ dwelling unit)

Show calculations here, and list sources for costs/savings, or attach backup data pages

As this is a proposed change to the C406 section this is an option that an owner can pursue if they choose this option and determine that it is cost effective. Therefore, cost analysis information has not been provided as it is not a mandatory requirement of the code.

Therefore, only information is provided as to the energy and/or carbon emissions savings. The Energy Code TAG may need to adjust the number of credits for based on final code language for this credit or other credits.

See DOE study weblink below for energy savings estimates:

[Drain-Water Heat Recovery | Department of Energy](#)

Cost and Installation

Prices for drain-water heat recovery systems range from \$300 to \$500. You'll need a qualified plumbing and heating contractor to install the system. Installation will usually be less expensive in new home construction. Paybacks range from 2.5 to 7 years, depending on how often the system is used.

Provide your best estimate of the annual energy savings (or additional energy use) for your code change proposal?

[Click here to enter text](#).KWH/ square foot (or) [Click here to enter text](#).KBTU/ square foot

(For residential projects, also provide [Click here to enter text](#).KWH/KBTU / dwelling unit)

Show calculations here, and list sources for energy savings estimates, or attach backup data pages

List any code enforcement time for additional plan review or inspections that your proposal will require, in hours per permit application:

[Estimate minimal additional field hours to verify the circulation system equipment type and efficiency on plan review or in field.](#)

All questions must be answered to be considered complete. Incomplete proposals will not be accepted.